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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

July 11, 1996

BY HAND

William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

DOCKET FILE COPY ORIGINAL

Re: In the Matter of Advanced Television Systems and Their Impact
Upon the Existing Television Broadcast Service
(MM Docket No. 87-268, FCC 96-207)

Dear Mr. Caton:

Enclosed please find the original plus eleven copies of the comments of Philips Electronics North America Corporation regarding the above-referenced proceeding. Also enclosed is one additional copy, which I ask that you stamp and return to the deliverer for return to our office.

Respectfully submitted,

Lawrence R. Sidman

Lawrence R. Sidman

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**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of

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**COMMENTS OF
PHILIPS ELECTRONICS NORTH AMERICA CORPORATION**

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SUMMARY

Philips, a leading manufacturer of consumer electronics products and an employer of more than 30,000 people in the United States, strongly supports the Commission's proposed adoption of the ATSC DTV Standard as an essential first step toward accomplishing the Commission's goal of ensuring the smooth introduction of free and universally available digital broadcast television service, increasing the availability of new products and services to consumers, and encouraging technological innovation and competition.

The adoption of a single transmission standard is, technologically and practically speaking, essential to accomplish a truly universal transition to DTV, perpetuate our national system of free, over-the-air broadcasting, and maximize the efficient use of spectrum. Further, a required standard will provide psychological and economic certainty to consumers, broadcast licensees, investors and equipment manufacturers, as they make critical investment decisions that will launch DTV. If the Commission rejects the "standard-certain" approach in favor of a patchwork quilt strategy to digital broadcasting standards, it will retard, if not destroy, the introduction of digital television service in the United States.

Philips strongly disagrees with those who argue that the adoption of a single digital television standard would freeze the current state of technology. In point of fact, a technological freeze will be occasioned only upon the *failure* to adopt a standard, as exemplified by the demise of AM stereo.

The Grand Alliance system, upon which the ATSC DTV Standard is based, is the most thoroughly tested, exhaustively researched, openly developed and widely accommodating system of its kind. Its technical capabilities, flexibility and interoperability are unmatched by any other system in the world and have allowed the United States to "leapfrog" its competitors in the race to develop the driver technology which holds the key for the convergence of the television and computer. Adoption of the ATSC DTV Standard will not only provide Americans with quantum improvements in entertainment television, it will concurrently serve as an enormous information "pipe" to all American homes, which will substantially facilitate access to and the development of the National Information Infrastructure.

The ATSC DTV Standard is so flexible and offers so many video formats that it accommodates the needs of the computer, movie production, broadcast, cable and satellite industries, and, most importantly, the needs of consumers. In fact, five of the six HDTV formats in the proposed DTV standard are progressive scan; only one is interlaced. The ATSC DTV Standard, thanks to the input of the computer industry, also features square pixels.

As noted in the NPRM, the process by which the ATSC DTV Standard was developed, tested and approved is perhaps as impressive as the technology it produced and should serve as a model for similar projects in the future. The breakthrough technology was developed through an extraordinarily open and cooperative inter-industry/governmental effort and has received broad-based industry support as well as the endorsement of the FCC's Advisory Committee on Advanced Television Services ("ACATS").

The Commission must act quickly to adopt the ATSC DTV Standard. There is an ever-diminishing "window of opportunity" for America to lay claim to the digital television technology that should be embraced as the worldwide standard. America is on the brink of relinquishing its lead to international competitors, especially those in Europe, who already have adopted a different digital television standard which is attracting support throughout Europe and elsewhere. There is a well-known maxim of the international technology marketplace: in the highly competitive global marketplace for high technology, international capital and R&D investment, technical and creative talent, new manufacturing, plant siting, and resulting job growth all flow to the country that grabs the early technological lead. The U.S. now stands at a crossroads: it can choose to export DTV technology worldwide, create American jobs and ensure the introduction of important consumer benefits; or it can choose to wait and, in very short order, import foreign DTV technology, and forsake American workers and consumers.

The journey to the threshold of digital HDTV has been a voyage marked by entrepreneurial investment and initiative and government encouragement. We need only implement the FCC's carefully developed, thoughtful plan to ensure bold new video and information services for consumers and thousands of jobs for American workers. Philips

implores the Commission to stay the decade-long course to facilitate the orderly, consumer friendly transition to digital HDTV and to adopt, early this fall, the ATSC DTV Standard so we can begin to translate the many promises of digital television into reality for American consumers and American workers.

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**COMMENTS OF
PHILIPS ELECTRONICS NORTH AMERICA CORPORATION**

I. INTRODUCTION

Philips Electronics North America Corporation ("Philips") respectfully submits these comments in the Commission's Fifth Notice of Proposed Rulemaking ("NPRM") in its Advanced Television proceeding. In this NPRM, the Commission seeks comment on its proposed adoption of the digital television ("DTV") broadcast standard endorsed by the Advanced Television Systems Committee ("ATSC"), and recommended to the Commission by the Advisory Committee on Advanced Television Services ("ACATS" or "Advisory Committee"). Philips believes the adoption of the ATSC DTV Standard is an essential first step toward accomplishing the Commission's goal of ensuring the smooth introduction of free and universally available digital broadcast television service, increasing the availability of new products and services to consumers, and encouraging innovation and competition.^{1/} In

^{1/} *Fifth Notice of Proposed Rulemaking* in MM Docket No. 87-268, FCC 96-207 (1996) at 2 [hereinafter *NPRM*].

addition, the adoption of the ATSC DTV Standard will ensure the maintenance and creation of thousands of American jobs; maximize spectrum efficiency; and maintain the United States' lead in the race to develop the worldwide standard by which interactive digital communications may converge with terrestrial, over-the-air television technology.

A. Interest of Philips in the Adoption of the ATSC DTV Standard.

Philips is a leading manufacturer of diverse consumer electronics products, ranging from television sets to electric shavers to lighting. Philips employs more than 30,000 people in the United States, nearly ten thousand of whom work in its color television set and color picture tube manufacturing facilities in Tennessee, North Carolina and Ohio. Philips also operates advanced R&D facilities in Briarcliff Manor, New York; and Palo Alto, CA; as well as semiconductor design and manufacturing facilities in New Mexico and California.

Philips is extremely proud to have been instrumental in the development of digital HDTV, beginning with its own research initiated in 1983, later as a member of the Advanced Television Research Consortium (comprised also of NBC, Thomson Consumer Electronics and the David Sarnoff Research Center), and finally as a participant in the "Grand Alliance."^{2/} In the past eight years, Philips has expended \$100 million in private capital to create and commercialize digital HDTV.^{3/}

^{2/} The Grand Alliance is comprised of Philips Electronics, Thomson Consumer Electronics, AT&T, General Instrument, MIT, Zenith Corporation and the David Sarnoff Research Center.

^{3/} The Grand Alliance estimates that, overall, the industry has invested approximately \$500 million, including approximately \$300 million from the Grand Alliance members themselves. See Statement of Robert K. Graves on Behalf of the Digital HDTV Grand Alliance before the Subcommittee on Telecommunications and Finance of the Committee on Commerce, U.S. House of Representatives, March 21, 1996.

Philips commends the Commission for its vision and outstanding leadership in making possible the development of the undisputed world-leading DTV technology -- the ATSC DTV standard -- and for pursuing a public policy framework that promotes efficient spectrum use, technological innovation and maximized consumer benefits.

Philips wholeheartedly endorses the Commission's proposed adoption of the ATSC DTV Standard as a critical first step towards the successful introduction of digital television services in the United States and the delivery of advanced information technologies to all Americans.

II. THE COMMISSION SHOULD ADOPT A UNIFORM STANDARD FOR TERRESTRIAL, OVER-THE-AIR DIGITAL BROADCASTING AS AN ESSENTIAL FIRST STEP TOWARDS THE DEVELOPMENT OF ADVANCED TELEVISION SERVICES IN THE UNITED STATES.

There exists a widely recognized need for a single broadcast transmission standard as a means of fostering the rapid and universal development of DTV. Indeed, the NPRM's discussion of whether to adopt the ATSC DTV Standard is premised on the Commission's earlier finding, in its Second Inquiry, that "...the public interest compels a Commission role in the development of standards with the advice and involvement of all sectors of the industry."^{4/} Philips supports the Commission's recognition of the need for a standard and strongly agrees that adoption of a broadcast transmission standard is an essential first step to the introduction of DTV technology in a manner that best serves the public interest.

^{4/} NPRM at ¶23.

Philips appreciates and wishes to comment upon concerns raised by Chairman Hundt upon the adoption of the NPRM as to whether it is in the public interest for "government (to) be in the business of mandating standards at all," based upon the presumption that the adoption of such standards would "freeze the current state of technology."^{5/} Philips emphatically believes that the adoption of a single, uniform DTV transmission standard is, technologically and practically speaking, the only means by which to accomplish the Commission's fundamental goals of a smooth and universal transition to DTV and the more efficient use of spectrum allocated for broadcasting services. Moreover, the inherently dynamic nature of the proposed ATSC DTV Standard makes its adoption fully compatible with and facilitative of the Commission's interest in not foreclosing the introduction of future technical improvements and innovations.

A. The Adoption of a Single Transmission Standard is Technologically Essential to Accomplish the Commission's Goals of Promoting a Smooth and Universal Transition to DTV and Maximizing Spectrum Efficiency.

The beauty of our nation's half-century-old experiment with terrestrial, over-the-air television broadcasting is that it provides every single American equipped with a television set access to the same high quality broadcasting services no matter where they may live or what type of set they own. This is only possible because a single broadcast transmission standard exists that serves to ensure absolutely seamless compatibility between the broadcast television stations and every television set manufactured and sold in the United States. Thus, a New Englander moving to the mid-west can be certain that the television she currently

^{5/} Statement of Chairman Hundt, May 9, 1996.

owns will function equally as well in Cleveland as it does in Boston. And, in Boston, a college student purchasing a 13" black and white television set can do so knowing that the set will receive the same number of channels as the home theater belonging to the business executive.

Indeed, the existence of a single, national broadcast transmission standard is all that stands between our having a national television service and our having any number of closed, local or regional systems and certainly is the only means by which national television networks could ever successfully exist. The universality of free TV, and the unparalleled quality of local and national news and entertainment it is capable of distributing, have made this nation's system of free TV a truly indispensable service for Americans, the vast majority of whom rely on television as the single most important link to their local communities, the nation and the world.

The Commission now strives to ensure that the introduction of terrestrial, over-the-air *digital* broadcasting is accomplished in a manner that in no way compromises the universal availability of free television and, by doing so, maintains the fundamental guarantee of compatibility upon which consumers now depend. To accomplish that core objective, the Commission must adopt and require the use of a single broadcast transmission standard. There is no leap of logic involved; it is simply common sense: if Philips or any other DTV equipment manufacturer were to invest millions to design receiving equipment according to one standard, and various broadcasters throughout the country transmit their programming according to another standard, consumers purchasing the Philips sets may immediately lose

their ability to receive that local signal. The guarantee of compatibility that consumers have relied upon would evaporate, taking with it our system of universally available, free, over-the-air television.

In fact, throughout broadcasting's history, the existence of standards - or lack thereof -- has played a "make or break" role in the success of new broadcast technologies. As Commissioners Quello and Ness correctly noted in their statements supporting the adoption of the ATSC DTV Standard^{6/}, one need only recall the FCC's earlier failed attempt to advance the development of AM Stereo without mandating a uniform transmission standard to see that "'minimal regulation where necessary' is a more sound governmental approach than blanket deregulation."^{7/} In that instance, the FCC's strategy authorizing a multitude of minimally acceptable, competing standards led only to confusion in the marketplace, delay in AM Stereo's development and acceptance by consumers, and, ultimately, the relegation of AM radio to a permanently inferior status among radio services.

Conversely, as the Commission points out in its NPRM,^{8/} the FCC's successful adoption of the NTSC color standard in 1953 -- and the subsequent smooth transition to color NTSC broadcasting which it enabled -- illustrates the need for *and success of* uniform broadcast standards in fostering the orderly introduction of advanced broadcast technology.

^{6/} See, "Statement of Commissioner Susan Ness," May 9, 1996: and "Statement of Commissioner James H. Quello," May 9, 1996.

^{7/} Quello, *supra*.

^{8/} NPRM at ¶34.

Philips cannot stress more strongly its belief that the successful introduction of DTV as a revolutionary leap forward in our system of universally available, free television entirely depends upon the Commission's first adopting and mandating the use of a single broadcast transmission standard.

B. Certainty in the Marketplace is the Sine qua Non for the Success of DTV.

The Commission correctly points out in its NPRM that "a required standard may provide additional certainty to consumers, licensees, and equipment manufacturers, especially during the launch of (DTV)."^{9/} Philips strongly agrees. Indeed, without the psychological and economic certainty attached to the adoption of a single transmission standard, lack of investment at every level of DTV technology will result in an insufficient mass market for advanced digital television service in the U.S. and delay or prevent the successful introduction of this exciting and important new technology.

A single transmission standard would ignite investment in digital television technology by providing certainty to: 1) Wall Street, where investment decisions will hinge on the existence of a sufficient market for digital television technology; 2) broadcasters, who will be required to spend millions of dollars to re-equip their production and transmission facilities, and who will not risk doing so if they are not certain their signal will be universally received and that it will be free from interference and other technical problems; 3) manufacturers, who must invest millions in product development and plant construction and/or retooling, and who must be confident that they are designing to a standard which will

^{9/} NPRM at ¶32.

guarantee a national purchasing base; and finally, 4) American consumers, who initially will have to pay a premium for a digital television set and who will rightfully insist that: (a) the DTV set they purchase be capable of receiving all of their existing over-the-air channels; (b) the DTV set is transportable to other locations without diminished or complete loss of functionality; and (c) that a sufficient amount of digitally broadcast programming exists.

If the Commission rejects the "standard-certain" approach in favor of a patchwork quilt strategy to digital broadcasting standards, it will retard, if not destroy, the introduction of digital television service in the United States. As a result, what could be one of America's crowning technological achievements of the 20th century would instead, in a short time, simply evaporate.

C. The ATSC DTV Standard is Sufficiently Flexible to Accommodate Future Improvements and Innovation.

Philips recognizes that some argue that the adoption of a single digital television standard would freeze the current state of technology. We strongly disagree. In point of fact, a technological freeze will be occasioned only upon the *failure* to adopt a standard. Again, the demise of AM stereo serves as a strong warning that the failure to adopt universally employed broadcast standards results in confusion in the marketplace, significantly diminished market penetration, and, ultimately, the death of that new technology.

As discussed in greater detail below, the ATSC DTV Standard provides not only sufficient but unparalleled flexibility and "headroom" to accommodate any number of new developments, in either interlace or progressive scan display formats. It is more easily

interoperable with computers and telecommunications devices than any other digital television system in the world. The NPRM recognizes the extraordinary flexibility of the ATSC DTV Standard,^{10/} and correctly concludes that those who would dispute its capabilities bear the burden of persuasion.

III. THE ATSC DTV STANDARD IS A TOWERING ACHIEVEMENT IN OVER-THE-AIR DIGITAL BROADCASTING TECHNOLOGY AND SHOULD BE ADOPTED.

After nearly a decade of pioneering scientific effort, more than half a billion dollars in private sector investment, and intelligent, bipartisan governmental support, the ATSC DTV Standard proposed in the NPRM stands as a towering scientific achievement and, as Chairman Hundt stated upon the Commission's adoption of the NPRM, "nothing less than a revolution" in broadcast television technology.^{11/} Philips could not agree more strongly with this assessment.

The Grand Alliance system, upon which the ATSC DTV Standard is based, is the most thoroughly tested, exhaustively researched, openly developed and widely accommodating system of its kind. Its technical capabilities, flexibility and interoperability are unmatched by any other system in the world and have allowed the United States to "leapfrog" its competitors in the race to develop the driver technology which holds the key for the convergence of the television and computer. Philips wholeheartedly agrees with the

^{10/} NPRM at ¶49.

^{11/} See, "Separate Statement of Chairman Reed E. Hundt," accompanying the adoption of the Commission's Fifth NPRM, May 9, 1996.

Commission's view that "the ATSC DTV Standard describes a remarkable system that is capable and flexible well beyond the expectations of a few short years ago... [and that] it is the product of the genius and persistence of its creators and is a tribute to their efforts."^{12/}

A. America Has Come From Behind in Capturing the Lead in the Race to Develop a Worldwide DTV Standard.

In the late 1980's, it was taken for granted by U.S. policymakers that Europe and Japan would take the lead in the development of an advanced, high resolution terrestrial broadcast technology that would set the standard for the world. In response to this perception that yet another critical high technology was leaving America and taking with it well-paid and highly skilled jobs, a truly bipartisan effort was mounted to prevent that occurrence. President Reagan established the Advisory Committee on Advanced Television Services to assist in the development and rapid implementation of HDTV in the U.S. Concurrently, the Congress challenged American industry to respond. Through a succession of hearings and demonstrations, Congress created a national consciousness of the potential benefits of HDTV. Succeeding Administrations took up the call. During the Bush presidency, the FCC, then chaired by Al Sikes, and the Advisory Committee, under the leadership of Dick Wiley, set up an open competition to select, from among 23 original proposals, the best system.

Although many initially presumed that the winning proposal would come from abroad, what happened over the next decade was nothing less than extraordinary. At the

^{12/} NPRM at ¶49.

time, the conventional wisdom, particularly in Europe and Japan, was that terrestrial high definition television could only be accomplished using traditional analog signals, and that digital television would forever be confined to satellite-delivered services. The industries competing to develop a U.S standard, to their enormous credit, refused to accept this limitation. Years after Europe and Japan had all but abandoned their efforts to develop a terrestrial digital broadcast system, American researchers, in an extraordinary technological breakthrough, finally broke through the digital HDTV barrier, enabling America to leapfrog international competitors in developing the "driver" technology which holds the key to convergence of the computer and the television. The spur of intense competition among some of the most innovative technology companies in the United States generated repeated scientific triumphs. The entrants, prodded skillfully by ACATS Chairman Wiley and continuously encouraged by the FCC, agreed to combine their proposals -- all for digital systems -- into a "best of the best" system: the "Grand Alliance" system. The members of the Grand Alliance, the ATSC^{13/} and the Advisory Committee worked feverishly to develop and test this newly integrated digital broadcasting transmission system. Finally, after nearly a decade, the ATSC endorsed the Grand Alliance system and, in November 1995, the FCC's Advisory Committee recommended the ATSC DTV Standard to the Commission for its adoption.

^{13/} The United States Advanced Television Systems Committee, a private sector organization engaged in developing and coordinating voluntary industry standards for a wide range of advanced television systems, including digital HDTV, was established in 1982 by the Electronic Industries Association, the Society of Motion Picture and Television Engineers, the National Cable Television Association, the National Association of Broadcasters and the Institute for Electrical and Electronics Engineers. It is presently composed of more than 50 corporations, associations, and educational institutions, including terrestrial and cable broadcasters, broadcast and consumer electronics equipment manufacturers (including Philips), and members from the motion picture, computer and telecommunications industries.

B. The Commission's ACATS Process is a Model of Successful Public-Private Cooperation and Has Produced a Technological Product That Accommodates a Diverse Range of Needs.

The process by which the ATSC DTV Standard was developed is perhaps as impressive as the breakthrough technology it produced and should serve as a model for similar projects in the future. Not only does the standard accomplish nearly everything the ACATS set out to achieve (exceptional improvements in picture and sound quality, exceedingly efficient use of spectrum, flexibility of use for video and data transmissions, interoperability with computers, and the ability to be further modified without wholesale re-equipping), but it did so within a process that was entirely open,^{14/} transparent, impartial, and in which hundreds of volunteers from dozens of firms in the broadcasting, cable TV, equipment manufacturing, motion picture production, computer and telecommunications industries participated fully. Each of these persons and organizations contributed their very best efforts to specify system requirements, develop hardware, and to verify the performance and reliability of the Grand Alliance standard through a rigorous testing regimen. Above all, the Advisory Committee, with the encouragement of the FCC, has always focused upon the goal of fostering the development of a system that serves the needs of the American people.

Precisely because of the open nature of the ACATS process, the Grand Alliance system was developed to meet the diverse and often conflicting needs of: film and television post production (including computer-generated images); broadcasting; cable television; consumer electronics; computers; telecommunications and international standards. Because

^{14/} Between 1988 and 1995, the ACATS and its various Subcommittees and Working Groups noticed more than 300 open, public meetings across the country.

no single rigid approach could simultaneously meet such a broad spectrum of needs, the resulting standard - as reflected in its nearly universal industry acceptance - is one that is simultaneously flexible, interoperable and expandable.

Philips wishes to associate itself with comments filed in this proceeding by the Advanced Television Systems Committee, which describe in detail the extraordinarily inclusive, open and competitive nature of the Advisory Committee's DTV standard evaluation and selection process. All along, the FCC has encouraged this process and, taking that encouragement to heart, dozens of private companies together have invested hundreds of millions of dollars and dedicated 10 years of research, development and testing by their best people to ensure that the American standard would truly be the very best in the world. The Commission should acknowledge this outstanding accomplishment and the stunningly fair and capable process that brought about the ATSC DTV Standard by adopting the standard as proposed in the NPRM.

C. The ATSC DTV Standard is Unmatched in Terms of Its Flexibility, Expandability and Interoperability.

One of the greatest achievements of the ATSC DTV Standard is its tremendous flexibility, expandability and interoperability. Indeed, one of the principal goals of the Advisory Committee was to ensure that the DTV standard maximized interoperability among various media. After more than 5 years of testing and evaluation by numerous interoperability review panels and working groups (in which all affected industries were represented), the Advisory Committee overwhelmingly approved the ATSC DTV Standard as having succeeded in accomplishing that goal.

To achieve virtually unlimited flexibility, the system employs MPEG-2 video compression, along with a packetized data transport system with headers that identify the type of data that each packet carries. These techniques are widely employed in data transmission systems worldwide. This means that in addition to HDTV, the transmission system can carry three or four simultaneous programs of standard-definition television (SDTV) at other times of the day, or numerous audio programs, software, stock quotes, sports scores, weather reports, and a host of other potential information services. Moreover, all this can be transmitted over broadcast, cable, satellite or fiber.

This same capability also ensures that additional features and functions can be added to the system in the future without degrading the performance of the earliest digital television sets or rendering them inoperable. This is possible because later generations of digital sets can use packet headers to recognize data associated with new capabilities, while earlier receivers will ignore packets of a type they don't recognize.

The ATSC DTV Standard, in its HDTV mode, actually accommodates six basic formats, five of which are progressive scan display and only one of which is interlace. All feature square pixels for computer compatibility. Due to its cost-effectiveness, better picture quality (particularly for fast-action sports programming), and the sheer volume of programming already produced using the interlaced format, many broadcasters have expressed their preference to transmit using the interlace format. However, the standard also accommodates those entities, including the computer industry, and, as recently announced, the ABC television network, which would prefer to use progressive scan. Again, the genius

of the Grand Alliance's "Big Tent" approach is that no matter which format providers choose, they can do so using within the framework of the proposed ATSC DTV Standard.

Finally, the ATSC DTV Standard not only is extraordinary in its own right, but there is no other system yet proposed that even begins to match its capabilities, flexibility and interoperability. Europe's Digital Video Broadcasting ("DVB") system is based entirely on standard definition television ("SDTV"), currently supports only interlaced scanning formats and uses non-square pixels. In short, DVB technology lacks even the basic features necessary to achieve interoperability with computers or telecommunications.

IV. THE COMMISSION SHOULD ACT IMMEDIATELY TO ADOPT THE ATSC DTV STANDARD, LEST ADDITIONAL DELAY CAUSE THE UNITED STATES TO LOSE ITS EVER-DIMINISHING LEAD IN THE DEVELOPMENT OF THE WORLDWIDE DTV STANDARD, AND FURTHER DENY AMERICAN CONSUMERS AND WORKERS THE BENEFITS PROMISED BY DTV.

A. Further Delay in the Adoption of a DTV Standard will Irrevocably Harm the United States' Ability to Lead the Worldwide Market in DTV Technology.

The FCC's consideration of whether or not to adopt the ATSC DTV Standard - or any single standard - comes at a particularly critical juncture. As discussed above, Europe already is launching its own system. Japan is not far behind. Electronics companies from around the world, including many of those who have invested millions of dollars in the development of the Grand Alliance standard, now must decide whether to abandon their investment in the U.S. technology in order that they may follow what they see as the progressing technological leadership in Europe and Japan. There is a well-known maxim of

the international technology marketplace: in the highly competitive global marketplace for high technology, international capital and R&D investment, technical and creative talent, new manufacturing, plant siting, and resulting job growth all flow to the country that grabs the early technological lead. One need only look to Japan's audio electronics market and the United States semiconductor industry for proof of this phenomenon. The U.S. now stands at a crossroads: it can become either a beneficiary or a victim of this principle in the area of advanced digital television.

If the Commission, as it has proposed, adopts the scientifically advanced and widely endorsed ATSC DTV Standard, the world marketplace will be looking to America not only for digital television technology and expertise, but also for DTV's many supporting industries (including content distribution -- already one of America's strongest exports). However, if another country is allowed to capitalize on the window of opportunity created by America's indecision in adopting a digital television standard, all the global economic benefits that now are within our grasp will be quickly drawn away by foreign competitors. The question comes down to a simple choice: will the U.S. become the exporter of DTV and its spin-off technologies or an importer of an inferior foreign standard?

B. Delay in the Adoption of a DTV Standard Only Serves to Deny American Consumers Important Quality-of-Life Benefits and Hinder the Development of the National Information Infrastructure.

Digital television represents a quantum leap forward in terrestrial, over-the-air television technology. Thanks to the technological breakthrough embodied by the ATSC DTV Standard now before the Commission, American television viewers stand to experience

vastly improved video and audio quality, and will be able to receive program-related data at the same time. In addition, the interactive capabilities afforded by digital technology will permit television to realize its full potential to be an educational tool as well as an entertainment medium. In addition, DTV spin-off technologies, such as extraordinarily accurate medical imaging and diagnostic devices, including new breast cancer detection techniques, will have extremely positive, real life benefits for all Americans.

Not only will the ATSC DTV Standard enable consumers to receive *vastly improved* broadcast picture and sound quality, it will concurrently serve as an enormous "information pipeline" -- delivering large quantities of data which, combined with a high resolution display, will support a virtually unlimited variety of advanced information services to American homes, schools and businesses. In so doing, adoption of the ATSC DTV Standard will greatly facilitate substantial improvements in and access to our National Information Infrastructure.

Further delay in the adoption of the ATSC DTV Standard only serves to push back the date upon which Americans will receive these important benefits and services. Moreover, if that delay results in the more rapid assimilation of inferior, less interoperable foreign technology, such as DVB, these benefits -- both to consumers and to the further advancement of the National Information Infrastructure, will fail to materialize altogether.

**C. Digital Television Will Maintain and Create Thousands of American Jobs -
- Jobs That Will be Lost If the ATSC DTV Standard is Not Adopted
Expeditiously.**

The extremely positive impact of digital HDTV will be felt immediately in the workplace and the American economy overall, as the transition from analog to digital television maintains and creates many thousands of jobs, not only in the television set manufacturing industry, but also in the broadcast television, broadcast production equipment and semiconductor industries. The rapid success of the direct broadcast satellite industry, which utilizes digital video transmission technology, is concrete evidence of the economic growth which can be expected. Development of new products and services, both hardware and software, is limited only by people's imaginations. DTV is a technology which will preserve and create many thousands of jobs.

Again, continued delay in the adoption of the ATSC DTV standard not only delays the creation of these jobs, it threatens to send them overseas, perhaps Europe in the case of DVB, where the locus of DTV technology will act as a magnet for worldwide DTV research, investment and manufacturing. It is a consequence that is not only unnecessary, given the fact that the technology needed to keep these jobs at home sits right in our laps ready to go, but potentially devastating to the American economy, which increasingly depends upon the creation of higher-end jobs.

For these reasons, Philips strongly urges the Commission to act as quickly as possible, early in the fall of 1996, to adopt the ATSC DTV Standard.